

REMARKS

Claims 1-2, 4-13, 15-19, and 21-24 were presented for examination in the present application. The instant amendment cancels withdrawn claims 11-13, 15-19, and 21-23 without prejudice and adds new claims 25-31. Thus, claims 1-2, 4-13, and 24-31 are presented for consideration upon entry of the instant amendment.

Claims 1 and 25 are independent.

The Office Action objected to the specification. The instant amendment amends the specification to obviate this objection. Reconsideration and withdrawal of the objection to the specification are respectfully requested.

Claims 1 and 4 were rejected under 35 U.S.C. §112, first paragraph. In addition, claims 1, 4, 8, and 24 were rejected under 35 U.S.C. §112, second paragraph. Claims 1, 4, 8, and 24 have been amended to obviate these rejections.

For example, claim 1 now recites that the metal oxide intermediate layer increases the transmittance and/or reflectance of the functional metal layer, which is disclosed in the present application at least at page 6, lines 31-33.

Claim 4 now recites “repeating the sputtering, interrupting, and continuing steps with different layer starting materials (emphasis added)”.

Claims 1 and 24 have been amended to recite a minimum thickness. Claim 1 has been amended to remove the rejected “sufficient” limitation, while claims 1 and 8 have been amended to change the first and second “portion” to the first and second “sub-layer”.

Accordingly, reconsideration and withdrawal of the rejection under 112 are respectfully requested.

Independent claim 1, as well as dependent claim 7, were rejected under 35 U.S.C. §102(b) over Japanese Publication No. JP58-147556 to Kawada in view of European Publication No. EP-0548972 to Ando et al. (Ando) and European Publication No. EP-0516436 to Bartolomei et al. (Bartolomei). In addition, independent claim 1, as well as dependent claims 4-5, 7, 9, and 24, were rejected under 35 U.S.C. §102(b) over Ando. Dependent claims 2, 8, and 10 were rejected under 35 U.S.C. §102(b) over Ando in view of Bartolomei.

Claim 1 now recites the step of “interrupting the sputtering at least once to produce a metal oxide intermediate layer on the first sub-layer (emphasis added)”. Further, claim 1 now recites the steps of “sputtering the layer starting material on the substrate to define a first sub-layer of the functional metal layer” and “continuing sputtering the layer starting material after the metal oxide intermediate layer is produced to define a second sub-layer of the functional metal layer”.

Applicants submit that the cited art fails to disclose or suggest a “functional metal layer” in combination with a “metal oxide intermediate layer” as recited in claim 1.

Kawada discloses an aluminum film formation that is interrupted several times to form a film of a different metal film using vacuum vapor deposition of sputtering. Kawada discloses that this different metal film is needed between the aluminum film to prevent the generation of coarsened crystal particles in the aluminum film. However, Applicants submit that Kawada fails to disclose or suggest that its metal intermediate layers can be a “metal oxide intermediate layer” as in clarified claim 1.

Ando discloses a glass substrate 1, a metal oxide film 2, a functional film 3, and a second metal oxide film. However, Ando also fails to disclose or suggest that the functional film 3 is a “metal oxide intermediate layer” as claimed.

Bartolomei merely discloses sputtering of metal oxide layers, but fails to disclose or suggest sputtering such metal oxide layers as an intermediate layer between first and

second sub-layers of a functional metal layer as claimed.

Accordingly, Applicants submit that Kawada alone or in combination with Ando and/or Bartolomei, as well as Ando alone fail to disclose or suggest interrupting the sputtering of first and second sub-layers of a functional metal layer to produce a metal oxide intermediate layer on the first sub-layer as recited by clarified claim 1.

Thus, claim 1, as well as claims 2, 4-13, and 24 that depend therefrom, are in condition for allowance. Reconsideration and withdrawal of the rejection to claims 1-2, 4-13, and 24 are respectfully requested.

Claims 25-31 have been added to point out various aspects of the present application. It is submitted that new claims 25-31 are directed to the elected embodiment of Group I. Support for new claims 25-31 can be found in the specification at least at page 10, line 34 through page 12, line 6.

Applicants specifically point out that new claims 25-31 are not intended to be limited to the specific mechanisms of patentability previously argued with respect to any prior claims in this or any related applications. Accordingly, Applicants hereby rescind any disclaimer of claim scope and, thus, any prior art for which such a disclaimer was made to avoid may need to be revisited by the Examiner with respect to new claims 25-31.

It is believed that new claims 25-31 are in a condition for allowance. For example, claim 25 recites the step of "introducing an oxygen-rich microwave plasma into the vacuum chamber so that a surface of the first sub-layer of the functional metal layer is oxidized (emphasis added)".

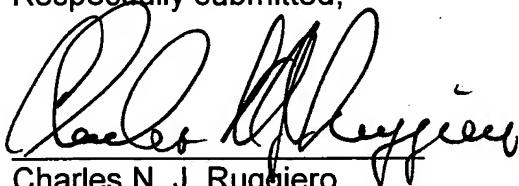
Applicants submit that the cited art fails to disclose or suggest the introduction of an "oxygen-rich microwave plasma into the vacuum chamber" as recited by claim 25. Instead, Bartolomei discloses carrying the coated substrate into a plasma region. Thus,

claim 25, as well as claims 26-31 that depend therefrom are in condition for allowance.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited.

If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below.

Respectfully submitted,



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